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The writer several times divided colonies of *P. intermedium* and of *P. rostratum*, keeping one-half of each colony in running water while the other half was left undisturbed. The half-colonies in running water produced almost exclusively sporangia, while the corresponding undisturbed halves produced conidia. In the systematic part of the work, 18 species are critically described and arranged. Four of these are new, one (*P. palmivorum*) being of interest on account of its unusual habitat, growing in the terminal buds of palms which are soon killed and destroyed by the fungus. Since palms grow only by the terminal bud, its death involves the destruction of the tree. Another form (*P. Indigoferae*) is epiphytic in the waxy covering of the leaves of *Indigofera arrecta*. Under the title "Species omitted" there are added brief notes on some 18 species whose descriptions are for the most part so fragmentary that identification is impossible. In the second part, a number of species of Chytridiaceae are described, with some observations on their structure and habits.—H. HASSELBRING.

**Anatomy of Uvularia and Tricyrtis.**—QUEVA<sup>14</sup> has followed his studies on *Gloriosa* and *Littonia* by an examination of the anatomy of *Uvularia* and *Tricyrtis*, which differ from the first-named genera in having a rhizome in place of a tuberous stem. In accord with this difference, *Uvularia* presents a simpler structure than *Gloriosa*, and *Tricyrtis* is still simpler in the disposition of its vascular strands. The bundles in the stem of *Tricyrtis* are all of the same rank, while *Uvularia* has bundles of several ranks; the larger ones are situated near the center of the stem and form the main vascular strands of the leaves, while the smaller ones run at the periphery of the stem and run to the margin of the leaves. In place of the cambium observed in the bundles of the tuber in *Gloriosa*, *Uvularia* presents only a radial arrangement of the cells of the procambial strands. These two conditions are sharply distinguished by the author, who accordingly throws doubt on the cambial nature of the cells in the bundles of sedges and grasses, figured by PLOWMAN and by CHRYSLER. The question appears to be one of definition of terms.—M. A. CHRYSLER.

**The nucleus of Spirogyra.**—The excellent methods and cytological experience of the GRÉGOIRE school are well shown in a late paper by BERGHS.<sup>15</sup> Both the chromatic and the achromatic figures are traced in detail. The so-called nuclear network of *Spirogyra* takes no part in the formation of chromosomes. In the prophase the nucleolus begins to show a double nature, for the chromosomes are differentiated within it, while a second substance preserves its spherical form. This second substance divides in the plane of the future cell wall and also becomes segmented into rod-shaped pieces, after which half passes with the chromosomes to each pole to form the daughter nuclei. No spirem is formed either in the

<sup>14</sup> QUEVA, CHAS., Contributions à l'anatomie des Monocotylédonées. II. Les Uvulariées rhizomateuses. Beih. Bot. Centralbl. 22:30-77. figs. 49. 1907.

<sup>15</sup> BERGHS, JULES, Le noyau et la cinèse chez le *Spirogyra*. La Cellule 23:55-86. pls. 1-3. 1906.

prophase or telophase. The spindle is a cytoplasmic structure; even the part within the limits of the nuclear membrane does not come from the network surrounding the nucleolus, but grows in from the outside.—CHARLES J. CHAMBERLAIN.

**Illinois River sand region.**—In connection with the work of the Illinois Biological Station on the Illinois River at Havana, a brief survey was made of certain waste sandy areas in the neighborhood. The botanical survey was made by H. A. GLEASON,<sup>16</sup> whose results have now been published. The ecological factors of these peculiar areas are discussed, and four plant associations are presented. Under prairie formation the three associations are the "bunch-grass," the "blow-sand," and the "blowout;" while the single representative of the forest formation is the black-jack oak association. A list of the plants is given and the phytogeographic relationships are discussed.—J. M. C.

**Sulfuric acid as a fungicide.**—KRAEMER<sup>17</sup> in experimenting with dilute sulfuric acid as a fungicide finds that solutions from 1 part to 500 to 1 part to 1000 are not injurious to ordinary field plants such as wild cherry, elder, ailanthus, yellow dock, abutilon, and others. Roses infected with mildew were sprayed several times with a solution of one part H<sub>2</sub>SO<sub>4</sub> to 1000 water without injury and with the complete destruction of the mildew. This fungicide may prove especially useful in greenhouses where mildew is often very destructive to roses and where ordinary fungicides are not applicable since they spot and discolor the foliage.—H. HASSELBRING.

**Chromosomes of *Oenothera*.**—GEERTS<sup>18</sup> finds 14 chromosomes in *Oenothera Lamarckiana*. In connection with a brief paper he figures several somatic divisions as well as the heterotypic mitosis in the microspore and megaspore mother cells. BEER<sup>19</sup> found 14 chromosomes in *O. longiflora* and GATES<sup>20</sup> reported 14 in *O. lata*, but 20 or more in the *O. Lamarckiana* hybrid obtained from a cross of *O. Lamarckiana* with *O. lata*. GEERTS also notes the constricted shape of the chromosomes in the anaphase and telophase of mitosis.—R. R. GATES.

**Secondary thickening in *Pandanus*.**—SCHOUTE<sup>21</sup> has investigated the alleged secondary growth in the stem of *Pandanus*, and comes to the same conclusion as

<sup>16</sup> GLEASON, HENRY ALLAN, A botanical survey of the Illinois River valley sand region. Bull. Ill. State Lab. Nat. Hist. 7:149-194. 1907.

<sup>17</sup> KRAEMER, HENRY, Dilute sulphuric acid as a fungicide. Proc. Amer. Phil. Soc. 45:157-163. 1906.

<sup>18</sup> GEERTS, J. M., Ueber die Zahl der Chromosomen von *Oenothera Lamarckiana*. Ber. Deutsch. Bot. Gesells. 25:191-195. pl. 6. 1907.

<sup>19</sup> BEER, RUDOLF, On the development of the pollen grain and anther of some Onagraceae. Beih. Bot. Centralbl. 19:286-313. pls. 3-5. 1905.

<sup>20</sup> GATES, R. R., Pollen development in hybrids of *Oenothera lata* × *O. Lamarckiana*, and its relation to mutation. BOT. GAZETTE 43:81-115. pls. 2-4. 1907.

<sup>21</sup> SCHOUTE, J. C., Ueber die Verdickungsweise des Stammes von *Pandanus*. Ann. Jard. Bot. Buitenzorg II. 6:115-137. pls. 5-8. 1907.